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Relationship between Injury and Spirituality in Pilgrims on the Camino de Santiago

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Relationship between Injury and Spirituality in Pilgrims on the Camino de Santiago

A thesis submitted in partial fulfillment of the requirement for the degree of Bachelor of Science
in Kinesiology and Health Sciences from The College of William and Mary

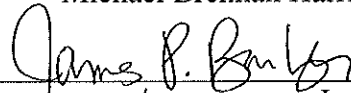
By

Katelyn E. Rennyson

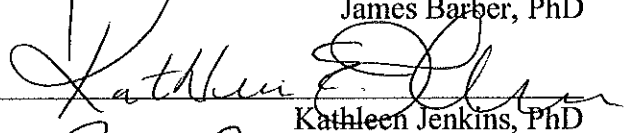
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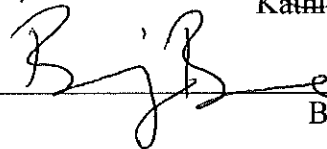
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Table of Contents

Title Page.....	1
Abstract.....	4
Background	5
Spirituality, Injury, and Illness	6
El Camino de Santiago de Compostela.....	12
FACIT Survey.....	15
Injuries and Long Walks.....	16
Purpose.....	18
Methods.....	19
Participants.....	19
Materials and Design.....	20
Procedure.....	20
Statistical Analysis.....	20
Empirical Specification.....	21
Results.....	23
Injury Data.....	24
Homogenous distance group.....	26
Other Data.....	27
Discussion.....	29
Primary Findings.....	29
Injury and Illness on the Camino de Santiago.....	32

Limitations and Future Directions.....	34
Demographics.....	34
References.....	36
Appendices.....	41
Appendix A.....	41
Appendix B.....	42
Appendix C.....	52
Appendix D.....	53

Abstract

The purpose of this research was to determine whether there is a relationship between spirituality and the likelihood of injury and the impact of that injury on pilgrims walking along the Camino de Santiago. The Camino de Santiago is an ancient, 791 km Christian pilgrimage route along the north of Spain from the French Pyrenees to Santiago de Compostela in Galicia, Spain. A total of 418 participants aged 18-80 were recruited along the Camino, and through social media, from May 15 to August 20, 2017. Participants on the walk completed a ten minute survey with questions pertaining to general demographics, injury and illness experiences, physical well-being and general fitness. Spirituality was assessed using the FACIT-Sp-12 questionnaire. Data was analyzed using Qualtrics, Excel, and Stata platforms.

Results show that a participant's spirituality score was not able to predict whether they would experience an injury or not on the pilgrimage ($p=0.498$; 95% CI [0.954, 1.023]). However, the data did demonstrate that participants who were more spiritual were better able to cope with an injury or illness while walking the pilgrimage ($P<0.05$; OR=1.253; 95% CI [1.165, 1.349]). These data suggest that pilgrims who walk the Camino de Santiago for spiritual or religious reasons may feel less impacted by any injuries or illnesses they experience on their journey.

Keywords: Spirituality, Religion, Injury, Pilgrims, Camino de Santiago, Wellness

Background

In western medicine, the psychological aspect of health has traditionally been overlooked and underestimated in the role it plays in one's well-being (Wade and Halligan, 2017). The psychological aspects of care are often exempted from medical examinations as physicians have typically employed a biomedically dominant approach to medicine (Yuan, 2017). However, in the past few decades, more healthcare professionals have begun to adapt the holistic biopsychosocial model into their practices. This evolution of care has emerged as scholars have realized that it takes more than a purely medicinal approach to find a cure or solution to an illness, disability, or injury (Suls and Rothman, 2004). This biopsychosocial (BPS) model, developed by Dr. George Engel in the late 1970's, takes a perspective on health which incorporates all three human components: biological, psychological, and social (Pilgrim, 2002). Many studies have assessed this forthcoming use of the BPS model in healthcare.

Two studies, one by Suls and Rothman (2002) and the other by Wade and Halligan (2017), have demonstrated the increasing rate at which the BPS model has been acknowledged and incorporated into recent publications. However, as discussed in these two articles, this increase in awareness is just the beginning for its actual applications in the healthcare field. These two studies also discuss the current lack of use of the BPS model in certain types of medical practices. The BPS model is most often seen at use in practices that fall in the fields of psychiatry, rehabilitation, palliative care, and learning disability services, while it is scarcely seen in the realm of surgery and acute care (Wade and Halligan, 2017). This discrepancy could possibly be explained by the fact that these fields that do implement the BPS model have immense research and studies proving its positive benefits and effectiveness in their fields.

These studies which discuss the interplay between spirituality, injury, and illness will be discussed in the next section.

Spirituality, Injury, and Illness

To draw some of this together, one must first consider the concepts of spirituality and religion. Spirituality and religion are commonly seen as interchangeable concepts; however, many scholars define these two concepts as highly separate entities. The distinction between spirituality and religion is clearly defined in a publication by Ruth Tanyi: “Spirituality involves humans’ search for meaning in life, while religion involves an organized entity with rituals and practices about a higher power or God” (2002). In this sense, religion can be seen as an elective community in which one may choose to participate in or be a part of throughout their life in order to guide their beliefs in a superior being. Spirituality can be intricately linked to religion in an individual’s life, however, it does not necessarily need to be viewed in the same realm. While there is not unanimous consensus about the definition of spirituality, it can be described as a unique, “inherent component of being human”, which suggests that it is something that every person exhibits or possesses in one way or another – whether they choose to pursue its purpose in their life or not (Tanyi, 2002). That being said, it is also something complex that applies on a broad dimension. Again, Tanyi (2002) gives a thorough, yet concise summary of the concept of spirituality:

Spirituality is a personal search for meaning and purpose in life...It entails connection to self-chosen and or religious beliefs, values, and practices that give meaning to life, thereby inspiring and motivating individuals to achieve their optimal being. This connection brings faith, hope, peace, and empowerment. The results are joy, forgiveness

of oneself and others, awareness and acceptance of hardship and mortality, a heightened sense of physical and emotional well-being, and the ability to transcend beyond the infirmities of existence (p. 506).

This definition and understanding of spirituality forms the basis of many studies which aim to investigate the implications of this important component of individual's lives and the extent to which it can help improve their overall health and quality of life.

Many studies have resolutely acknowledged the effectiveness of implementing the biopsychosocial model for patients who have chronic diseases or have experienced a traumatic or life-altering injury or event. Broadly speaking, these publications demonstrate that patients who have a higher degree of spirituality more often exhibit enhanced health outcomes (Johnson et al., 2017; Johnstone and Yoon, 2009; Siddall et al., 2017; Wade and Halligan, 2017; Wilson et al., 2017). These findings, which will be discussed in further depth below, have been demonstrated in a variety of patients including, but not limited to, patients with spinal cord injuries, traumatic brain injuries, heart failure, and cancer.

Myriad publications have focused specifically on patients with spinal cord injuries (SCIs) and the extent to which their spiritual views and attitudes affect their rehabilitation outcome and outlook on life. In one such publication titled "A Study of Spirituality and Life Satisfaction Among Persons with Spinal Cord Injury", the data demonstrated a significant positive correlation between spiritual factors and life satisfaction in SCI patients (Brillhart, 2005). Brillhart explains from her perspective as a rehabilitation nurse, that the findings of this study demonstrate the realities of improved social and mental health outcomes for these patients when there is an emphasis placed on the spiritual component of recovery by the attending nurse. She mentions that taking this holistic approach through the rehabilitation process for a SCI patient

can help improve multiple dimensions of their life post-injury and should be exploited for the ultimate best outcome for these patients who have suffered a spinal cord injury (Brillhart, 2005).

This holistic approach has also been employed in other healthcare scenarios which involve patients who have other types of chronic injuries or illnesses. These studies also tend to address similar questions regarding whether spiritual measures in the rehabilitation process may result in improved outcomes for the patient.

In a 2012 publication by Mary White, the importance of spirituality is discussed in patients with heart failure. This study concentrates on a specific group composed of African American outpatients because they are more susceptible to heart failure issues (White, 2012). White (2012) was able to conclude that “spiritual self-care” was key in managing a heart failure diagnosis among this group of patients in conjunction with keeping up with their treatment regimen and appointments. The spiritual self-care advised in this setting was aimed at having the patient engage in activities which would continue their personal life improvement while enhancing their spiritual well-being. These practices were based on their “mind/spirit/body connection, upbringing, moral and religious background, and life experiences that originate from faith, feelings, and emotions” (White, 2012, p.299). This included a broad range of activities such as volunteering, walking and hiking, listening to inspirational music, or attending religious services. These spiritual self-care practices, which were offered to the patients by the nurses, resulted in an improved quality of life outlook among the patients who employed these tactics. This in turn, White (2012) believes, will ultimately improve these patients long term disease outlook as this intrinsic motivation allows these patients to employ other self-care techniques to improve their health in multiple areas.

Another notable study by Erickson (2008) investigated this same question while focusing on the effect of spirituality on adolescent care. This research employed a case study approach to explore the implications of spirituality practices among youth who experience a traumatic event or injury. This case study followed a young teenage girl who had suffered from a spinal cord injury as a result of a traumatic car crash during which she lost her grandparents and mother (Erickson, 2008). Due to the fact that many publications only focus on adults in the event of these types of injuries, the investigator sought to determine the importance of incorporating spirituality into her care as an adolescent after this traumatic event which left her in acute care for months. In Erikson's discussion, through the analysis of this case, he lists several instructions for the care of other adolescents who experience similar situations. He concluded that providing such spiritual support for adolescents is essential to ensure they feel that they are in good company throughout their care and moving forward in life. This support can help instill hope and faith in their arduous journey towards finding good direction and meaning to their life (Erikson, 2008).

Other studies have focused on the importance of spirituality and religion in cancer patients and have found similar positive outcomes (Delgado-Guay et al., 2016; Jim et al., 2015). A meta-analysis which examined a collective sample of more than 32,000 cancer patients found that religion and spirituality were positively associated with improved physical health outcomes (Jim et al., 2015). These investigators suggested that spiritual and religious support should be provided throughout the length of a patient's care because it has shown to improve their physical well-being and outlook on life (Jim et al., 2015). A second study conducted specifically on Latin American cancer patients implemented an interview and survey-based study design to analyze the associations between religiosity, spirituality, coping, and quality of life outlook (Delgado-

Guay et al., 2016). This study used the FACIT-Sp survey along with other coping and quality of life questionnaires. The FACIT-Sp survey utilized in this study is also used in our current study and will be explained further in the “FACIT Survey” section. Delgado-Guay et al. (2016) discovered that the majority of these patients considered themselves spiritual and religious and that this identification helped these cancer patients cope with their illness. The positive coping experiences were correlated with better strategies, less emotional distress, and greater quality of life (Delgado-Guay et al., 2016).

Due to the fact that these traumas, injuries, and illnesses have a profound impact on the mental aspect of these patients lives, a few more recent studies have directly assessed whether the spirituality of these patients can be a predictor for happiness or depression, post-diagnosis. A study by Siddall et. al (2017) sought to investigate this effect of SCI on patients and also whether spiritual intervention could improve their rehabilitation outcome. Specifically, this study aimed to identify associations between a participant’s physical pain, psychological function, and spiritual well-being (Siddall et. al, 2017). Participants were recruited and organized into a control group without an SCI; and an experimental group with an SCI. Both groups were administered the FACIT-Sp spirituality survey to determine their level of spirituality and analysis was conducted through comparing the two groups. The study was able to conclude that in fact, SCI often is strongly associated with, “increased levels of spiritual distress which is correlated with higher levels of pain and depression and lower levels of pain, self-efficacy, and satisfaction with life” (Siddall et. al, 2017, p.105). The authors agree about the strong influence that spirituality has on a patient’s long-term recovery from spinal cord injury.

Two other similar studies confirm the relationship between spirituality and happiness (or lessening of sadness) in patients with spinal cord injuries. One such study, conducted by Johnson

et al. (2017) administered seven surveys to each of the participants with SCI which assessed different psychometric parameters. This study concluded that, “spirituality is associated with happiness indirectly through its association with perceived stress, health status, social support, self-esteem, and psychological well-being” (Johnson et al, 2017). This study also suggests that rehabilitation counselors should implement spiritual interventions in rehab for patients with SCI to improve overall happiness and life satisfaction.

The second of these two studies conducted by Wilson et al. (2017), also confirmed through administering the FACIT-Sp survey along with other psychological surveys that, “spirituality...is strongly associated with QOL and likelihood of MDD [Major Depressive Disorder]” (p. 491). These investigators also conclude that, “[an] assessment of spirituality should be included along with more traditional psychological measurements to better inform treatment” (Wilson et al, 2017, p. 491).

Additionally, some of these studies suggest implications and pose questions regarding the spirituality instruction for health care professionals. In an article published in 2011, McKnight and Juillerat examine the perceptions of clinical athletic trainers on spiritual care for injured athletes. Their study found that although athletic trainers have a strong concept of spirituality and the importance of its implications in patient care, they still felt that they lacked the skill and ability to practice spiritual care (McKnight and Juillerat, 2011). This study suggested ways to improve the education of athletic trainers so that they may be able to incorporate spirituality into their practice with athletes who are recovering from an injury. The authors proposed that educators could do so by primarily describing what this type of care should look like while making clear that practicing spiritual care does not suggest imposing personal views on the patient.

In light of this matter, recent progress has evolved in the education techniques for those receiving a medical education in the United States. Primarily, these recent changes have been made in an effort to place greater emphasis in the medical field on the social and behavioral sciences including psychology and sociology (Kaplan et al., 2012). Since the MCAT was revised in 2015, pre-medical students are now strongly advised to take sociology and psychology courses as pre-requisites for medical school. These changes have been implemented as a result of the realization that these social and behavioral sciences have profound effects on the health of the general U.S. population (Kaplan et al., 2012). Furthermore, many medical school curriculums are progressing in ways to better educate aspiring physicians to be able to treat patients from a more holistic approach.

On account of these recent findings and developing studies which aim to demonstrate the benefits of spirituality on recovery and rehabilitation outcomes, this study attempts to portray the role of spirituality on injury in hikers along the Camino de Santiago. Following previous studies conducted on injury incidence on long hikes, it is also predicted that the Camino de Santiago falls into a similar category where there may be a variety of overuse injuries experienced among pilgrims. Specifically, this study was directed at assessing whether the spiritual and religious aspect of the Camino plays any specific role with injury or illness throughout a pilgrim's journey.

El Camino de Santiago de Compostela

The Camino de Santiago de Compostela, commonly referred to as "the Camino", is an ancient Christian pilgrimage which has existed since medieval times (Slavin, 2003). Traditionally, pilgrims traveled from their doorstep along any path towards the holy city of

Santiago de Compostela where the body of the apostle Saint James (Santiago) remains – under the Santiago de Compostela Cathedral.

According to the Catholic Encyclopedia, it is said that St. James spent time preaching the gospel to the people of Spain before returning to Judea, where he was then martyred in the year 44 A.D. (Camerlynck, 1910). The Christian legend states that, “after his martyrdom... his followers carried his body to the coast and put it into a stone boat, which was guided by angels...to land near Finisterre, at Padrón, in northern Spain” (American Pilgrims on the Camino, 2018). His tomb site was not rediscovered until around the 9th century when it is said that Pelayo (a hermit living in Galicia) had a vision of a field of stars (a Compostela) which led him to the tomb of St. James (Tilson, 2005). Upon finding this tomb of the martyred apostle St. James, the village of Compostela, along with a monastery, were erected on this site. Once news spread of this newly established holy site, pilgrims began their journey from all over to reach the tomb of the Saint James the Apostle (Tilson, 2005).

Along with Rome and Jerusalem, Santiago de Compostela rounds out the three most important Christian Pilgrimages (Tilson, 2005). In the year 1119, the Camino de Santiago grew particularly in popularity when Pope Callistus II initiated a “Holy Year Privilege” which grants plenary indulgence to pilgrims who travel to St. James Tomb during a year when the feast day of St. James (July 25th) falls on a Sunday (Tilson, 2005). While individuals may still walk the pilgrimage for these religious reasons today, there are also a number of other reasons – such as recreation or cultural enjoyment – why people choose to walk, bike, or horseback-ride one of the established routes today.

Furthermore, the number of pilgrims arriving in Santiago appears to be increasing every year. In 2017, the pilgrimage office reported they received 301,036 pilgrims (“Estadísticas:

Oficina del Peregrino”, 2018). This figure is 23,182 more pilgrims than they received in 2016 and 186,570 more than a decade ago in 2007 (a 163% increase).

The demographics of these pilgrims represents a very diverse population including individuals from a variety of countries and of all ages, while maintaining a near-equal proportion of men to women pilgrims. Pilgrims also come to Santiago by various means of travel. Many travel by foot and some by bicycle or horse. Today, it is not very common for pilgrims to walk straight to Santiago from their doorstep, but instead, most follow one of the many planned routes through Spain. The most common route taken is the Camino Francés, which is a roughly 800 km (500 miles) journey from the French Pyrenees to Santiago de Compostela (“Estadísticas: Oficina del Peregrino”, 2018).

In light of the variety of reasons reported for walking the Camino, it still appears that due to the pilgrimage’s religious background and Christian focus, the majority of pilgrims report to the Pilgrimage office that they participated for religious reasons. The statistics from the Pilgrimage office in 2017 state that 43% of pilgrims reported walking the Camino for “religious purposes” and 47% reported walking it for “religious/cultural purposes”, while only 9% responded they completed the pilgrimage only for “cultural reasons” (“Estadísticas: Oficina del Peregrino”, 2018).

The pilgrims’ strong religious and spiritual motivations create a unique environment within the sphere of the Camino de Santiago. For this specific purpose, the pilgrimage provides a special setting to investigate injuries that may result from walking 30 days, more or less, to reach one’s final destination at the city of Santiago de Compostela. With a strong religious and spiritual aspect present, it has allowed this project to explore how a spiritual mindset may have

an impact on injury or the way a pilgrim may cope with any injury they experience on the pilgrimage.

FACIT Survey

To assess spirituality in this study, the FACIT survey was administered to each participant. The first version of the FACIT survey was developed in 1987 and was originally used to assess the level of spirituality in cancer patients; hence, the name FACIT, which stands for “Functional Assessment

of Chronic Illness Therapy”

(“Overview”, 2010). Today,

over 90 different types of

FACIT questionnaires exist

which may be used for a

variety of studies. This

wide range of topics

includes but is not limited

to: “fatigue, treatment

satisfaction, spiritual well-

being, HIV, multiple

sclerosis, [and] arthritis”

(“Overview”, 2010). Due to this broad spectrum of topics this survey can cover, it has been used

in many scholarly articles assessing spiritual well-being and quality of life in individuals.

FACIT-Sp (Version 4)

Below is a list of statements that other people have said are important. Please circle or mark one number per line to indicate your response as it applies to the past 7 days.

		Not at all	A little bit	Some- what	Quite a bit	Very much
Sp1	I feel peaceful	0	1	2	3	4
Sp2	I have a reason for living.....	0	1	2	3	4
Sp3	My life has been productive	0	1	2	3	4
Sp4	I have trouble feeling peace of mind.....	0	1	2	3	4
Sp5	I feel a sense of purpose in my life.....	0	1	2	3	4
Sp6	I am able to reach down deep into myself for comfort	0	1	2	3	4
Sp7	I feel a sense of harmony within myself	0	1	2	3	4
Sp8	My life lacks meaning and purpose.....	0	1	2	3	4
Sp9	I find comfort in my faith or spiritual beliefs.....	0	1	2	3	4
Sp10	I find strength in my faith or spiritual beliefs.....	0	1	2	3	4
Sp11 NI	Difficult times have strengthened my faith or spiritual beliefs	0	1	2	3	4
Sp12 NI	Even during difficult times, I know that things will be okay	0	1	2	3	4

Figure 1: FACIT-Sp-12 survey questions

These surveys are also available in over 50 languages so that they may be reliably used in cross-cultural settings to assess people from diverse backgrounds. This feature was particularly applicable in this study since the Camino brings together people from all over the world.

The specific FACIT version used in this study was the FACIT-sp-12 survey which is titled, “The 12-item Spiritual Well-Being Scale”. The questions asked in this survey are displayed in Figure 1.

The validity of this survey has been confirmed through multiple studies. A study conducted by Peterman et al. (2002) specifically focused on demonstrating the psychometric validity of using the FACIT-Sp survey. This survey conducted two trials which were able to demonstrate internal consistency reliability and convergent validity. These researchers did so by creating two study groups. The first group was composed of a multiethnic group of individuals who had cancer and were from different ethnic backgrounds, had different literacy levels, and spoke different languages (Peterman et al., 2002). For this part, they used four different psychological assessments including the FACIT-Sp. Study two consisted of participants with breast, colon, and lung cancer who affiliated with a church or synagogue. This part of the study aimed to further validate the FACIT-Sp by comparing its outcomes to other measures of spirituality. Overall, after assessing each of these variables, the data demonstrated both validity and reliability of the FACIT-Sp survey (Peterman et al., 2002).

Injuries and Long Walks

Various studies have been conducted regarding injuries and hiking. Some studies have investigated the prevalence of injuries among hikers along different trails and some have sought to investigate the effects of using different gear such as specialized boots or hiking poles to help

prevent injury. Much evidence from these studies demonstrate that the result of injury on long hikes is often due to overuse since these hikers are usually walking many consecutive hours over the course of days, weeks, or even months.

A study published in 2002 that assessed injuries and illnesses among long distance hikers on the Long Trail in Vermont (USA), found that almost 70% of hikers experienced some sort of injury or illness along the trail (Gardner and Hill, 2002). This study surveyed both thru-hikers and section hikers. These are hikers who completed the whole trail at once or who finished the hike at different times by section. Therefore, the thru-hikers would complete the entire trail in one visit which is 270 miles long. This study found that the most common type of injury among these hikers were musculoskeletal injuries, which were injuries such as ankle strains or back pain. Second to these types of injury are blisters, gastrointestinal complaints, and trauma (Gardner and Hill, 2002). These investigators specifically intended to determine the pattern of injuries along this long-distance trail in order to better inform future hikers for their preparation before embarking on the Vermont Trail, or other long-distance trails. In their discussion, the authors note advice to future hikers on the importance in correctly preparing and gathering knowledge prior to hiking to help reduce the amount of injuries encountered as well as the impact of injuries on the hiker's journey.

Another study with a similar research design was conducted on Appalachian Trail hikers in the United States. The Appalachian Trail is approximately 2,181 miles long which is significantly longer than the Vermont Trail. Therefore, due to the distances walked by these hikers, this study sought to identify the specific health care needs of these types of hikers. Among this study group, 82% of hikers experienced injuries and illnesses which resulted in an average loss of 4.7 days of hiking (Crouse and Josephs, 1993). It was also reported that 25% of

these cases were great enough in severity that they sought medical attention. Similar to the Vermont study, this report also found that, “musculoskeletal complaints, traumatic injuries, and gastrointestinal complaints were most often reported” (Crouse and Josephs, 1993). Additionally, the authors also discussed the necessity in packing appropriate medications and first aid care for embarking on a long hike such as the Appalachian Trail.

A third important study assessed the differences in injury occurrence between men and women on the Appalachian Trail. This study had findings similar to the aforementioned study conducted on the Appalachian Trail. This investigation demonstrated comparable results in injury prevalence among participants. They, too, found that musculoskeletal injuries and gastrointestinal problems presented as the most common issues. Among these injuries, they also found that blisters and other cutaneous type of injuries were very common (Boulware, 2004). This issue was also mentioned on the Vermont Trail as a common problem among hikers.

Due to the strong representative research on injuries along these types of long trails in the U.S., there appears to be a need to determine the specific injury patterns along the Camino de Santiago as well. This trail is roughly 500 miles long when walking the full trail on the Camino Francés route; thus, there is necessary evidence that there may be similar patterns of injuries experienced among pilgrims hiking this long-distance trail. However, it is expected that in investigating this distinct population, there could be differences present in the results due to the religious and spiritual nature of the trail and the different terrain encountered in Spain.

Purpose

The primary purpose of this study was to determine whether a pilgrim’s spirituality plays a role with injury along the trail. This study sought to discover if spirituality could help lower the

likelihood of injury and/or help pilgrims cope with and recover faster in response to injuries or illnesses that may be experienced along the trail. Additionally, another objective of this research was to describe the types and rates of injuries among pilgrims on the Camino de Santiago.

For the analysis of this study, our predictions on spirituality were divided into two hypotheses. The first hypothesis was that participants with a greater level of spirituality will be less likely to experience an injury or illness. The second hypothesis was that the more spiritual the participant, the better that participant will be able to cope with and recover from any injuries or illnesses they may experience along the pilgrimage.

Methods

Participants

This study was approved by the Protection of Human Subjects Committee of the College of William and Mary. All participants completed a digital informed consent prior to entering the Qualtrics survey platform (See Appendix A for consent form). Participants were recruited randomly from May 15th to August 20th, 2017, both online, using social networking pages and blog sites, as well as in-person in Spain along the Camino Francés and in Santiago de Compostela. Every participant had completed at least some portion of the Camino de Santiago de Compostela before taking the survey. There were 418 participants who completed the online survey. Of these 418 respondents, 69% were women and 31% were men (Figure C-2). The average age of respondents was 53.6 years with a range of 18-80 years of age. The majority (52%) of respondents fell in the 30-60 age range (Figure C-1). Various nationalities were represented in the study; however, 67% of respondents said they were from the United States. Other major nationalities represented in the study were Canadian, British, Irish, and Australian.

Materials and Design

The survey was developed in and administered to participants using the Qualtrics survey platform. Participants took the survey after completing some portion of the walk on any route of the Camino de Santiago. The survey consisted of questions pertaining to basic demographics, injuries and illnesses experienced on the Camino, spiritual and religious views, and exercise habits (See Appendix B for survey questions). Participants were asked about what types of injuries or illnesses they experienced and how this affected their journey. The spirituality portion of the survey incorporated the FACIT-Sp-12 survey which consisted of questions to determine the participant's spiritual views and religious associations (Figure 1). These questions attempted to understand respondents' motivations for walking the pilgrimage, specifically the role of spirituality and religion over the course of their journey.

Procedure

The survey link was distributed as described above. The survey was taken voluntarily, and all participants were required to read and accept the consent form before beginning the survey. The survey was taken online at the Qualtrics survey site on the participant's own time. The survey took participants an average of 8.95 minutes to complete the survey.

Statistical Analysis

After data collection was terminated, analysis was conducted using Qualtrics, Excel, and Stata (version 15) platforms. Logistic regressions were run on variables to determine significance and associations between variables.

Empirical Specification

As displayed in the equations below, logistic regression models were used to estimate odds ratios of injury incidence (Equation 1) and coping ability (Equation 2) by each participant's FACIT-Sp-12 spirituality score. Equation 1 was used to address the first research question of whether the spirituality of a participant plays a role in the incidence of injury or illness. Equation 2 was used to address the second research question of whether the spirituality of a participant affects their ability to cope with an injury or illness along their pilgrimage. Each of the two specifications were estimated as follows:

Equation 1:

$$\text{pr}(Y = 1 | X) = \frac{\exp(X\beta)}{1 + \exp(X\beta)}$$

where $X\beta =$

$$\alpha + \beta_1 \text{Score} + \beta_2 \text{Gender} + \beta_3 \text{Age} + \beta_4 \text{Distance (km)} + \beta_5 \text{DaysWalked} + \varepsilon$$

And $Y = (1)$ Experienced injury or illness, (0) Did not experience injury or illness

Injury is a binary variable coded as 1 when the participant experienced an injury or illness along their journey and 0 when the participant experienced neither an injury nor an illness. This variable was the outcome variable tested in this equation to address the first hypothesis of this study. The primary predictor of interest was *Score*. *Score* is a continuous numerical value which represents the calculated FACIT-Sp-12 spirituality score for each participant. The FACIT-Sp-12 scoring guidelines for this calculation are displayed in Appendix D. The variables *Gender*, *Distance*, and *DaysWalked* were used to control for the variety seen among participants. Controls

were chosen for this model based on previous studies which investigated injuries among long distance hikers on the Vermont and Appalachian Trails as well as in the Rocky Mountains (Boulware, 2004; Gardner & Hill, 2002; Hamonko et al., 2011). *Gender* is a binary variable coded 1 for males and 0 for females. *Age* is a continuous numerical variable ranging from 18-80 years. *Distance* is a continuous numerical variable with all values converted into kilometers. *DaysWalked* is a continuous numerical variable describing the amount of days that each participant walked the Camino de Santiago.

Equation 2:

$$\text{pr}(Y = 1 | X) = \frac{\exp(X\beta)}{1 + \exp(X\beta)}$$

where $X\beta = \alpha + \beta_1 \text{Score} + \beta_2 \text{Gender} + \beta_3 \text{Age} + \beta_4 \text{PastExperience} + \varepsilon$

And $Y = (1)$ Able to cope with injury/illness (0) Not able to cope with injury/illness

The dependent variable was *Cope*. *Cope* was a binary variable coded 1 for if the respondent felt like they were able to cope with their injury/illness and 0 if they felt they were not able to cope with their injury/illness. The same predictor value, *Score*, was used again in this equation. The variables *Gender*, *Age* and *PastExperience* were used to control for this model. These controls were selected for this equation, modeling previous studies which also used the FACIT survey to determine the role of spirituality in a patient's recovery from severe (Siddall et al., 2017; Wilson et al., 2017). *Gender* is a binary variable coded 1 for males and 0 for females. *Age* is a continuous numerical variable ranging from 18-80 years. *PastExperience* is a binary variable

coded 0 if participants had previously hiked another backpacking trip before and 1 if they had not.

Results

Table 1 presents the results of the analysis from Equation 1 which addressed whether spirituality had an effect on the incidence of injury in participants. The average spirituality score of participants, calculated from the FACIT-Sp-12 survey, was 33 with a range of 10-48.

This model revealed no significance between a participant's spirituality score and whether they experienced an injury or not ($p=0.498$).

Additionally, no significance was found between injuries and distance walked ($p=0.819$), days walked ($p=0.138$), gender ($p=0.731$), or age ($p=0.623$). The constant in this model describes the null model which contains participants with the lowest scores, the lowest number of kilometers and days walked, the females, and the youngest respondents.

Table 1. Spirituality and Injury
($n = 355$)

VARIABLES	(1) Injury
Score	0.988 (0.954 - 1.023)
Distance (km)	1.000 (0.998 - 1.002)
DaysWalked	1.033 (0.990 - 1.078)
Gender	1.091 (0.663 - 1.795)
Age	0.996 (0.980 - 1.012)
Constant	1.052 (0.248 - 4.453)
Observations	336
95% Confidence Interval in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$	

Table 2 presents the results of the analysis from Equation 2. This model demonstrated that the more spiritual a pilgrim, the greater the odds are that they are able to cope with an injury or illness experienced on the pilgrimage ($OR=1.253$; 95% CI [1.165, 1.349]). Age, gender, and past experience were controlled for but neither

Table 2. Spirituality and Coping
(n = 198)

VARIABLES	(1) Cope
Score***	1.253 (1.165 - 1.349)
Gender	0.742 (0.344 - 1.600)
Age	0.996 (0.970 - 1.023)
PastExperience	0.915 (0.448 - 1.867)
Constant	0.002*** (0.000 - 0.026)
Observations	190

95% Confidence Interval in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Injury Data

The average distance completed by participants was 546.3 kilometers (339.4 mi) with a standard deviation of 281.5 km. Participants who preliminarily completed the survey who reported walking 0 km were excluded from the analysis as were those who reported walking 1,000 km or greater (range = 55-995 km). On average, participants reported walking a total of

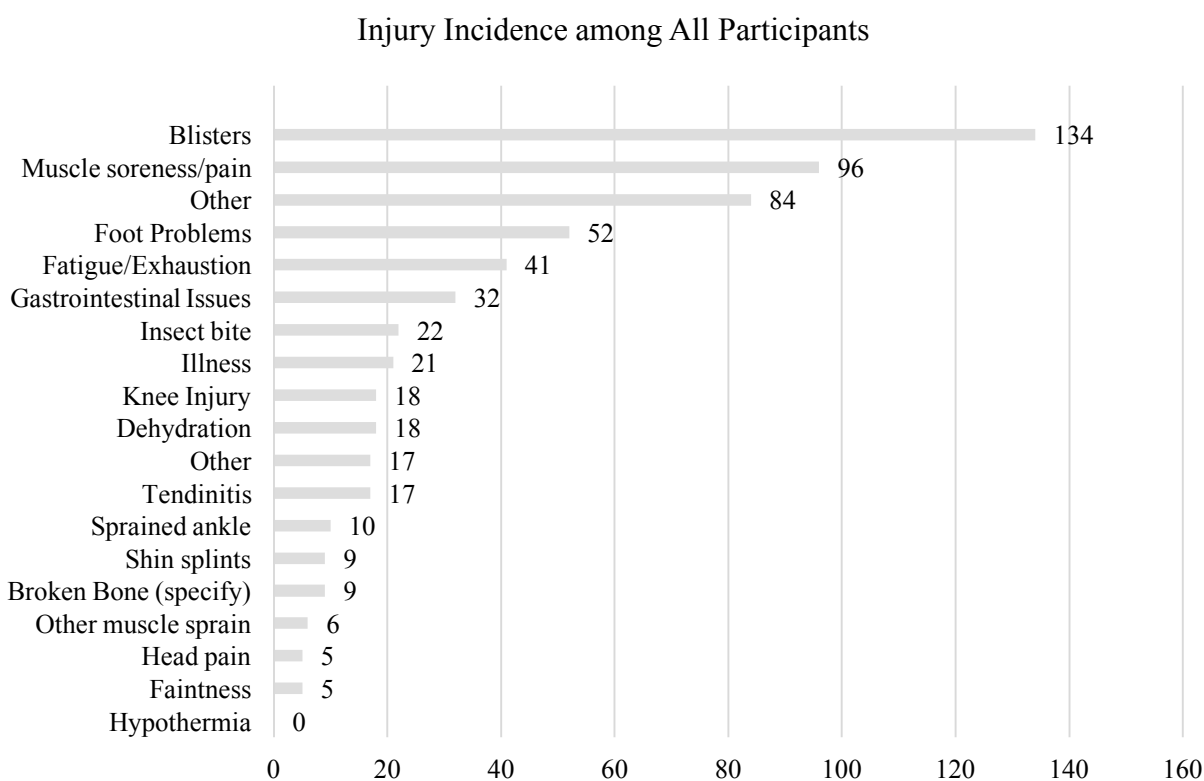
variable demonstrated significance in the model.

Therefore, a higher level of spirituality appears to demonstrate greater coping abilities regardless of having any prior backpacking experiences (p=0.807), and regardless of the age (p=0.791) or gender (p=0.446) of the participant. The constant in this model describes the null model which contains participants with the lowest scores, the females, the youngest respondents, and those with no prior backpacking experiences.

Injury type	Total n	%
Blisters	134	22.48%
Muscle soreness/pain	96	16.11%
Other	84	14.09%
Foot Problems	52	8.72%
Fatigue/Exhaustion	41	6.88%
Gastrointestinal Issues	32	5.37%
Insect bite	22	3.69%
Illness	21	3.52%
Dehydration	18	3.02%
Knee Injury	18	3.02%
Tendinitis	17	2.85%
Other	17	2.85%
Sprained ankle	10	1.68%
Broken Bone (specify)	9	1.51%
Shin splints	9	1.51%
Other muscle sprain	6	1.01%
Faintness	5	0.84%
Head pain	5	0.84%
Hypothermia	0	0.00%

Table 3: Injury incidence among all participants

24.5 days (SD = 13.1). Overall, a total of 596 injury incidents were reported. Table 3 and Graph 1 present the data for injury incidence among participants. The most common injuries were blisters (22.5%) and muscle soreness or pain (16.11%). 56.9% of females (n=145) and 57.9% of males (n=66) reported experiencing an injury or illness on their journey while 43% of females (n=110) and 42.1% males (n=48) reported they did not experience any injury or illness. There was no significant difference between the number of men or women who experienced an injury (P=0.556). There was also no significant difference between the age of participants and whether they experienced an injury or not (P=0.864).



Graph 1: Bar chart displaying the injury incidence among all participants

Homogeneous distance group. Additionally, in an attempt to investigate a more homogenous group of pilgrims, participants who walked a distance of 724-885 km (450-550 miles) were isolated for analysis. This mileage was selected due to the fact that the most popular route walked is the Camino Frances which spans roughly 800 km (“Estadísticas”, 2017). Therefore, analyzing this separate data set would provide the largest and most homogenous group in respect to the type of journey taken. Only 4% of the respondents in this group reported walking a route other than the Camino Frances.

Overall, this analysis revealed results similar to the findings of the entire group analysis. The same regressions were run for this sample (Table 4 and 5) as were run previously. Here, the only variable that demonstrated significance was gender (OR=0.282; 95% CI [0.089, 0.889]) for the second regression model. This finding indicates that females are more likely than males to be able to cope with an injury or illness experienced on their journey.

Table 4. Spirituality and Injury in the homogenous distance group (n = 128)

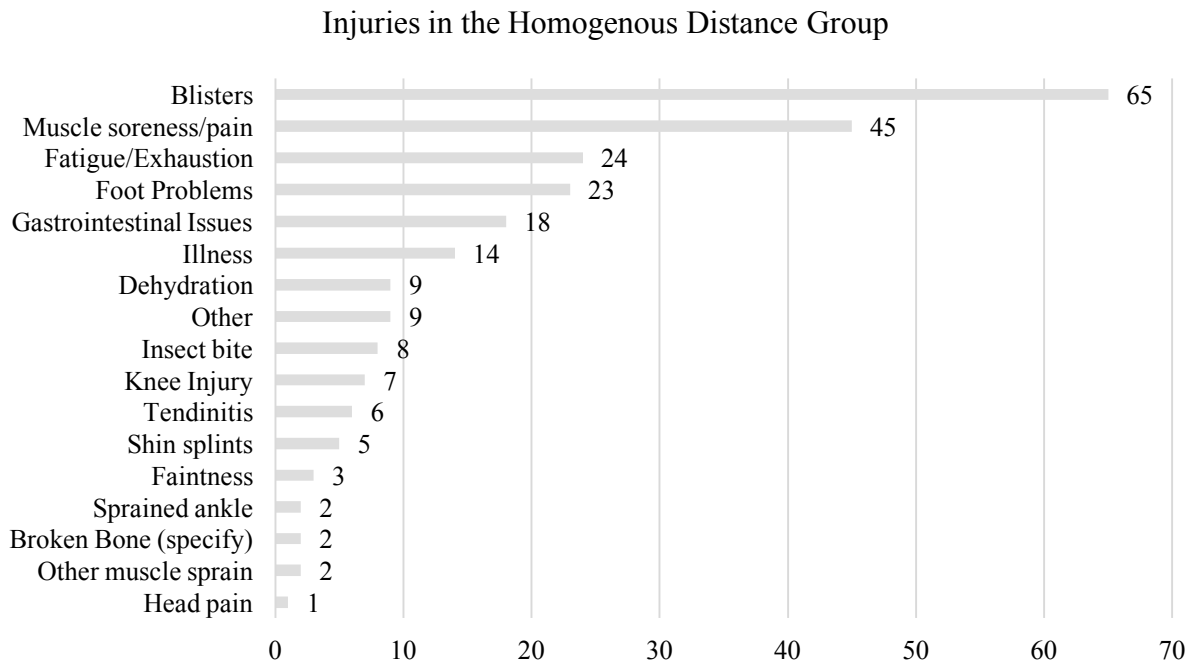
VARIABLES	(1) Injury
Score	3.927 (0.589 - 26.169)
Distance (km)	0.255 (0.038 - 1.697)
Gender	0.780 (0.360 - 1.692)
Age	0.996 (0.963 - 1.029)
DaysWalked	1.053 (0.986 - 1.125)
Constant	0.373 (0.000 - 42,428.991)
Observations	128
95% Confidence Interval in parentheses *** p<0.01, ** p<0.05, * p<0.1	

Table 5. Spirituality and Coping in the homogenous distance group (n = 78)

VARIABLES	(1) Cope
Score	1.005 (0.989 - 1.021)
Gender	0.282** (0.089 - 0.889)
Age	1.036 (0.987 - 1.087)
PastExperience	1.306 (0.449 - 3.802)
Constant	0.009 (0.000 - 6,935.610)
Observations	79
95% Confidence Interval in parentheses *** p<0.01, ** p<0.05, * p<0.1	

For this group, blisters and muscle soreness/pain remained the most commonly reported injuries. Fatigue/Exhaustion advanced to the third most common injury above foot problems.

The breakdown of injuries for this separate analysis is displayed below in Graph 2.



Graph 2: Bar chart displaying the injury incidence among participants in 724-885 km group

Other Data

Religions of participants are displayed in Graph 3. Overall, 85% of participants reported they affiliate with or practice some type of religion while 15% reported they did not.

Additionally, 78% of participants reported practicing their religion through some sort of worship such as meditation or prayer during their pilgrimage. The majority of participants (53%) reported they practice the Catholic religion. Predominantly, participants reported practicing a Christian or Protestant religion (Graph 3). To investigate the validity of the FACIT-Sp-12 survey in this study a logistic regression was also run between participant's spirituality score and three other dichotomous variables: *SpiritMotive*, *SpiritPurpose*, and *PracticeReligion* (Table 6).

SpiritMotive is whether or not

a participant was motivated to

walk the pilgrimage for

primarily spiritual purposes.

SpiritPurpose describes

whether or not their journey

had any spiritual purpose, and

PracticeReligion reports

whether or not the participant

practiced their religion in any

way over the course of their

camino. Each variable in this model

demonstrated significance. The FACIT-Sp-12 spirituality score predicted greater odds of

participants responding that they were primarily motivated to walk the Camino for spiritual

reasons (OR=1.109; 95% CI [1.067, 1.152]), that their camino had any spiritual purpose at all

(OR=1.165; 95% CI [1.112,

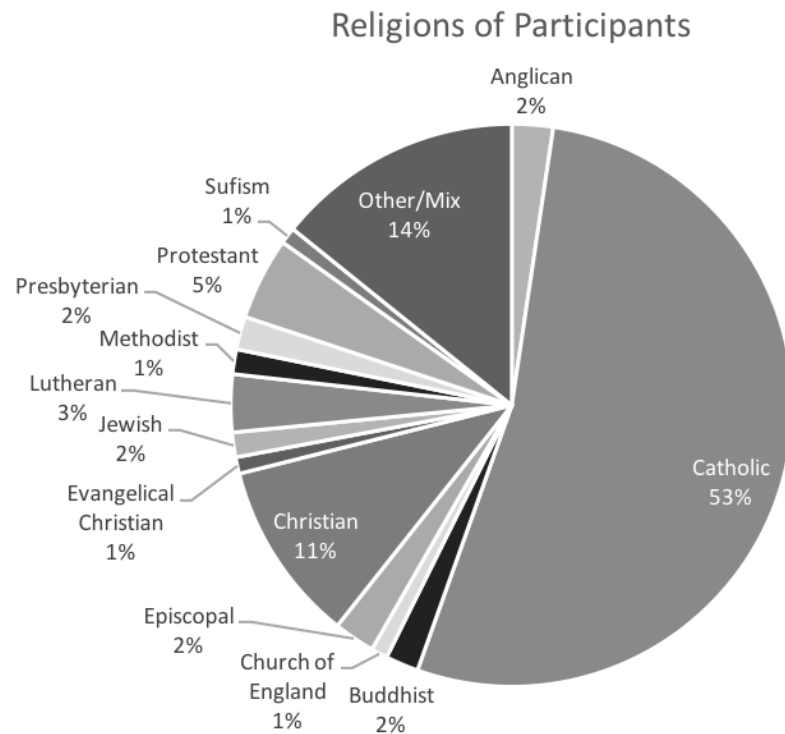
1.221]), and that they

practiced their religion at

some point along their

journey (OR=1.170; 95% CI

[1.119, 1.223]).



Graph 3: Religions practiced by participants

Table 5. Validity of FACIT-Sp-12 survey
(n = 198)

VARIABLES	(1) SpiritMotive	(2) SpiritPurpose	(3) PracticeReligion
Score	1.109*** (1.067 - 1.152)	1.165*** (1.112 - 1.221)	1.170*** (1.119 - 1.223)
Constant	0.035*** (0.009 - 0.129)	0.045*** (0.011 - 0.185)	0.025*** (0.006 - 0.100)
Observations	344	342	339

95% Confidence Interval in Parentheses

*** p<0.01, ** p<0.05, * p<0.1

Discussion

Primary findings

This study demonstrates that spirituality does not significantly predict whether or not a pilgrim on the Camino de Santiago will experience any injury or illness over the course of their pilgrimage. Additionally, this study indicates that the more spiritual a pilgrim, the better they will be able to cope with any injury or illness experienced on their journey. This second finding further supports previous research which has demonstrated the beneficial role of spirituality in response to injury (Johnson et al., 2017; Johnstone and Yoon, 2009; Siddall et al., 2017; Wilson et al., 2017).

This finding for our first hypothesis that spirituality does not have a direct association with injury incidence is not entirely surprising; however, no previous studies have been conducted to investigate this specific question. For this study, it was originally hypothesized that this association could be present due to the guidance and inner strength which spirituality provides (Tanyi, 2002). Additionally, it was also predicted this association between spirituality and injury may hold especially true on the Camino de Santiago, where pilgrims typically have a strong intrinsic motivation to hike this journey. This strong intrinsic motivation is often religiously or spiritually driven due to the strong religious roots and the tight-knit community which surrounds the Camino. This notion, that pilgrims walking the Camino generally represent a more spiritual and religious group, was in fact demonstrated in the results of this study. Overall, participants who reported an injury had a relatively high average spirituality score of 33 (scale of 0-48), compared to that of a previous study conducted on patients with SCI who had an average score of 24 on the FACIT-Sp survey. Additionally, a high percentage of participants reported practicing some type of religion (85%). Therefore, while our assumptions on spirituality

and religion appear to be correct for pilgrims along the Camino, this element does not demonstrate a significant role in predicting injury incidence among participants.

These strong spiritual and religious features that Camino pilgrims predominately possess allow us to understand the second research question of this study. The data demonstrate that the more spiritual a pilgrim, the better able they are to cope with an injury or illness along their pilgrimage (OR=1.26, $p<0.05$). Our study is consistent with previous studies which demonstrate that spirituality plays an important role in allowing subjects to cope with an injury or illness during their recovery phase (Delgado-Guay, 2016; Johnson et al., 2017; Johnstone and Yoon, 2009; Siddall et al., 2017; Wilson et al., 2017). Additionally, our finding that neither gender nor age has any association with this outcome also corresponds to previous studies which included these demographics in their analysis (Siddall et al., 2017; Wilson et al., 2017). These previous studies have primarily focused on patients with chronic injuries or illnesses such as spinal cord injury (SCI), traumatic brain injury (TBI), or cancer who are going through rehabilitation on a journey towards recovery. This area of research has discovered that implementing spiritual purpose and activities into these patient's routines and care has led to improved recoveries, higher quality of life outlooks, better physical health, greater happiness, and lower levels of stress and pain. Our study did not specifically investigate the role of each of these variables with spirituality; however, due to a strong background of evidence, it can be inferred that the reasoning behind this concept parallels that of these previous studies.

Literature which seeks to answer the question as to *why* spirituality plays an important role in rehabilitation and recovery points to the idea that spirituality is an “inherent component of being human” and it is something that one may choose to pursue in order to contribute greater meaning, purpose, and drive to one's life (Tanyi, 2002). In the context of this study, spirituality

seems to provide this intrinsic motivation for a pilgrim's journey. This in turn, allows participants to be able to see and understand their end goal or result. For highly spiritual pilgrims, the possession of this quality cooperatively allows them to cope with an injury or illness due to their strong intrinsic drive and ability to keep their ultimate goal(s) in sight.

The findings of this study make important contributions to the current evidence base of the benefits of spirituality in coping-based recovery mechanisms. This study applies this concept to a greater context, which adds to the existing evidence that spirituality-based coping may be useful in various settings. Although, the participants in this study differ from previous studies in the types of injuries and illnesses experienced, each situation presents a similar journey that each participant may travel through to fulfill their intentions. As mentioned earlier, the previous studies which yield results similar to this study, focused on patients with SCI, TBI, and cancer. In this study, the most severe or chronic types of injuries and illnesses experienced by participants were shin splints, muscle sprains, tendinitis, broken bones, and the flu. While these injuries and illnesses are obviously not as severe as a spinal cord injury or a terminal cancer, the challenge presented to these pilgrims in context is still quite significant. The majority of pilgrims (58%) responded they were still able to complete their mileage per day as planned and another 26% responded they were "mostly able to" complete this planned distance. With an average of 546 km (407 miles) completed by participants, the percentage that was able to continue on and still achieve their distance goal in face of an injury or illness is somewhat remarkable. This study employs this concept of spiritual-based coping in a real-time application where the more spiritual participants immediately reported more effective coping abilities in a direct response to injury along their journey which allowed these pilgrims to overcome the adverse situation they faced. This perseverance demonstrated by these pilgrims is unique and may have important future

applications as well. While these pilgrims are not experiencing the same level of difficulty and pain as the patients presented in previous studies, there is a commonality in the journey both face ahead of them. For the patients with chronic illness or traumatic injuries, their destination is recovery, which for some may be a long journey, requiring weeks, months, or years to reach. For most pilgrims walking along the Camino, their destination may be as far away as 800 km (500 mi) on foot to Santiago de Compostela, living with the minimal necessities of what can fit into a backpack. Even though these journeys appear very different, spirituality plays an important role in getting each person to their final destination.

The finding that spiritual participants were better able to cope with their injury and illness on the trail could also be very important for future hikers along the Camino or any other type of long hiking route. While the findings of this study further confirm previous studies' suggestions in the implications for patients in the medical field, this study also provides indications towards other possible associations spirituality may have in a greater application for other types of athletes. Injuries similar to the ones experienced by the long-distance hikers along the Camino are also seen in other long-distance trails in the U.S. such as Vermont's Long Trail and the Appalachian Trail. Therefore, it may be possible that these findings could be applied to these types of hikes. In this event, it would be advised that hikers along these routes learn how to practice a type of spiritual routine to assist them in their journey so that they are able to cope with any injuries or illnesses experienced on their journey.

Injury and Illness on the Camino de Santiago

This study also makes an important contribution to the existing research which focuses on injuries experienced by hikers on long-distance trails. Our finding that blisters and muscle

soreness/pain were the most common injuries experienced by pilgrims on the Camino de Santiago is comparable to previous studies conducted on long distance hikes in the United States such as the Long Trail in Vermont and the Appalachian Trail (Boulware, 2004; Crouse and Josephs, 1993; Gardner and Hill, 2002; Hamonko et al., 2011; Twombly and Shussman, 1995). The majority of these studies also found blisters to be in the top two most common injuries experienced by long distance hikers (Boulware, 2004; Crouse and Josephs, 1993; Gardner and Hill, 2002; Twombly and Shussman, 1995). While blisters typically pose only minor problems in most cases, they can develop into a more severe issue if they become infected and are not treated properly (Reynolds et al., 1995). Blisters may also make hikers uncomfortable and make walking long distances each day more challenging than necessary. Along the Camino, these blisters most likely develop due to the repetitive friction on hiker's feet every day or possibly with a poor combination with improper footwear or socks. Additionally, for this group of respondents who took the survey during the summer months, it is likely that the heat played a role in exacerbating this problem (Reynolds et al., 1995). It is advised to those who are planning to walk the Camino to bring extra pairs of socks, certain types of hiking socks, and blister bandages to help avoid and treat blisters.

Musculoskeletal and gastrointestinal complaints were also very common among pilgrims. This finding is also consistent with previous studies which found these issues were common among long distance hikers. Previous studies conducted in the U.S. which have also found gastrointestinal issues to be common among hikers theorized this issue could be due to inadequately prepared food or water (Crouse and Josephs, 1993). Pilgrims on the Camino are in a different situation than the hikers on these trails in the U.S. since there are restaurants, cafés, and stores in towns along the Camino; unlike the wilderness trails such as the Appalachian Trail which requires hikers to supply their own food and water. Therefore, inadequately prepared food is less likely to be the main cause

amongst pilgrims on the Camino. However, the change in diet for pilgrims traveling to Spain could be enough to cause such issues in addition to the physical stress placed on the body by hiking long distances each day.

The finding that distance and days walked did not have a significant correlation with experiencing an injury is counterintuitive and contrary to a previous study conducted on the long Vermont Trail in the U.S. This study found that thru-hikers (“who walked the trail continuously without a planned break”) were more susceptible to injury than section hikers (“who hiked a section at a time over the course of months or years”) (Gardner and Hill, 2002). This finding would also be expected for the participants in this study since the average days walked was 24 days, which is almost equivalent to the average of 25 days taken by hikers to complete the Long Vermont Trail in this study (Gardner and Hill, 2002).

Limitations and Future Directions

Demographics. The basic demographics of the participants of this study differed slightly from the statistics collected in 2017 by the pilgrim’s office in Santiago de Compostela. The pilgrim’s office is where pilgrims receive their certificate of completion, or Compostela, at the end of their pilgrimage. Our study population was composed of 69% females and 31% males while the pilgrimage office reported receiving 49% females and 51% males in 2017 (“Estadísticas”, 2018). This 20% difference in representation could possibly be described by the likelihood of either sex to take the survey. Our study had an age distribution as follows: 8% in the under 30 age group, 52% 30-60 years old, and 40% 60 years and above. The 2017 Camino office statistic reported receiving the following distribution: 28% of pilgrims in the under 30 age group, 55% 30-60 years, and 17% 60 years and above (“Estadísticas”, 2018). Our 30-60 age

category is very similar to the figure reported by the Camino office. The lower number of participants we received in the under 30 age group can be explained by the fact that survey participants had to be at least 18 years of age. The large representation of 60+ age group in this study could be due simply to the fact that older participants may have had more time or a greater inclination to complete the survey.

There are also some limitations to this study design that could have had a potential impact on the findings. Due to recruiting methods on the Camino trails and online forums, it is possible that reporting of some types of injuries may have been missing from this study. More severe types of injuries that would cause a hiker to terminate their journey to seek medical assistance may have been missed. In order to account for these types of injuries, future studies could investigate enrolment at nearby clinics and hospitals.

Future investigations could also be conducted to further address our spirituality hypotheses on other popular hiking trails such as the Long Vermont Trail and the Appalachian Trail in the United States. These trails would naturally present a different group of people that could test the applicability and generalizability of this study topic to a broader set of hikers and athletes. Since these trails in the U.S. do not have the strong religious backdrop that the Camino provides, it would be interesting to repeat this study with another group to attempt to determine if the Camino really is *unique* and to understand how spirituality may still play a role even when the religious/spiritual community is not a fundamental part of the journey.

A future repetition of this study could also be conducted to determine the underlying reasons why spirituality assists pilgrims in coping with an injury or illness. Questionnaires similar to those used in previous studies on SCI patients could also be adopted to this study such as Quality of Life surveys.

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Appendix A

Below is the consent form that respondents were required to read and sign before taking the survey.

Research Participation Informed Consent Form

Kinesiology Department
The College of William and Mary
Protocol # PHSC-2017-11816
Title: Pilgrims on El Camino: Injury and Spirituality
Principal Investigators: Dr. Harris and Katelyn Rennyson

This is to certify that I, _____ have been given the following information with respect to my participation in this study:

The purpose of this research is to determine the amounts and types of injuries that occur on El Camino as well as assess pilgrims' spiritual views and exercise habits. As a participant in this study, you will be asked to fill out a survey about your experience on El Camino, your spiritual views, your purpose and goals for walking El Camino, as well as your exercise habits. There are no known risks associated with this research as it is solely questionnaire based. Participation in this study will take approximately 10 minutes. Your participation is confidential. The data you contribute to this research will be identifiable only by a number assigned by the experimenter. Once you submit your responses and they are analyzed by the researcher, there will be no way to connect your responses with your personal identity. Moreover, all data and records will be stored on password-protected computers in a locked laboratory. Participation is completely voluntary. You are free to withdraw at any time without penalty or loss of benefits. You may choose to skip any question or activity. Participants will not be compensated for their participation. There are no known benefits of participating in the study. However, your participation in this research will contribute to the development of our understanding about the types and frequency of injuries that are experienced on El Camino. Additionally, it will help us understand possible connections between spirituality and injury and/or connections to physical fitness and the occurrence of injuries of those walking the trail. Participation may be terminated by the experimenter if it is deemed that the participant is unable to perform the tasks presented. Questions or concerns regarding participation in this research should be directed to: Dr. Brennan Harris at phone +1 757-221- 2757.

I am aware that I must be at least 18 years of age to participate in this project. I am aware that I may report dissatisfactions with any aspect of this study to Dr. Tom Ward, Ph.D., the Chair of the Protection of Human Subjects Committee by telephone (757-221-2358) or email (tjward@wm.edu).

I agree to participate in this study and have read all the information provided on this form. My signature below confirms that my participation in this project is voluntary, and that I have received a copy of this consent form.

Signature _____ date _____

Witness _____ date _____

THIS PROJECT WAS APPROVED BY THE COLLEGE OF WILLIAM AND MARY
PROTECTION OF HUMAN SUBJECTS COMMITTEE (Phone: 757-221-3966) ON [2017-03-01]
AND EXPIRES ON [2018-03-01]

Appendix B

Below is the survey which was administered to participants.

Pilgrims on El Camino: Injury, Exercise, and Spirituality

Q1 Name

Q2 Age

▼ 18 ... Over 100

Q10 Nationality

Q3 Email

Q11 Gender

- ☐ Male
- ☐ Female

Q4 Do you use the Imperial or Metric system?

- ☐ Imperial (Inches/lbs/miles)
- ☐ Metric (Centimeters/kgs/kilometers)

Q8 Height (Metric) - Centimeters

▼ 1 ... Over 200 cm

Q8 Height (Imperial)

Feet	▼ 0 ... 12
Inches	▼ 0 ... 12

Q6 Weight in kilograms (kgs)

Q9 Weight in pounds (lbs)

Q12 What Route did you take on El Camino?

▼ Camino Francés (French Way) ... Other

Q13 What is the distance you have completed? (kilometers)

Q14 What is the distance you have completed? (miles)

Q15 How many days have you walked for?

Q16 Have you or did you experience any sort of injury or illness during your journey on El Camino?

- ☐ Yes
- ☐ No

Q18 Please select all injuries/illnesses which you have experienced below:

- ☐ Blisters
- ☐ Faintness
- ☐ Dehydration
- ☐ Fatigue/Exhaustion
- ☐ Foot problems
- ☐ Sprained ankle
- ☐ Broken Bone (specify)
- ☐ Muscle soreness/pain
- ☐ Insect bite
- ☐ Hypothermia
- ☐ Head pain
- ☐ Gastrointestinal Issues
- ☐ Other muscle sprain
- ☐ Other: _____

Q19 Do you feel like your injury or illness impacted your experience on the trail?

- ☐ Yes, a great deal
- ☐ Yes, but only a moderate amount
- ☐ Unsure
- ☐ No, not at all

Q20 Did it make it harder to complete the goals that you had set for your journey?

- ☐ Yes

- No

Q21 After the injury, were you able to complete the mileage per day as planned?

- Yes
- No
- Mostly

Q53 Do you have any allergies?

- Yes
- No

Q54 Do you have food or seasonal allergies? Or both?

- ☐ Food Allergies
- ☐ Seasonal Allergies

Q55 Please select which food allergies you have:

- ☐ Milk
- ☐ Wheat
- ☐ Eggs
- ☐ Peanuts
- ☐ Tree Nuts
- ☐ Soy
- ☐ Fish
- ☐ Crustacean Shellfish
- ☐ Gluten
- ☐ Other

Q22 Below is a list of statements that other people have said are important. Please mark one number per line to indicate your response as it applies to the past 7 days. Survey incorporated from: FACIT-Sp-12 (Version 4) Not at all (0) – A little bit (1) – Somewhat (2) – Quite a bit (3) – Very Much (4)

	0	1	2	3	4
I feel peaceful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a reason for living	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

My life has been productive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have trouble feeling peace of mind	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a sense of purpose in my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to reach down deep into myself for comfort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a sense of harmony within myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My life lacks meaning and purpose	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find comfort in my faith or spiritual beliefs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find strength in my faith or spiritual beliefs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficult times have strengthened my faith or spiritual beliefs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Even during difficult times, I know that things will be okay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q23 Did your journey on El Camino have any spiritual purpose?

- ☐ Yes
- ☐ No

Q24 Do you affiliate with or practice any particular religion? If yes, please describe below:

Q25 Did you practice your religion on the duration of El Camino through any sort of worship such as meditation or prayer?

- ☐ Yes
- ☐ No

Q26 Do you feel like your spiritual/religious affiliation had an impact on your journey?

- ☐ Yes
- ☐ No

Q27 Were you motivated to walk this pilgrimage for primarily spiritual purposes?

- ☐ Yes
- ☐ No

Q28 Please briefly describe your motivation(s) for walking El Camino:

Q29 Did you find that your spiritual motivation and attachments helped you cope with your injury or illness that you experienced during El Camino?

- ☐ Yes
- ☐ No

Q30 Rate yourself on a scale of 1 to 5 (1 being the lowest value and 5 the highest):

	1	2	3	4	5
Athletic Ability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cardiovascular Fitness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Muscular Strength	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flexibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mental/Emotional Health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall Health/Well-being	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q31 Do you currently exercise regularly?

- ☐ Yes

- ☐ No

Q32 How many days per week?

▼ 1 ... 7

Q33 About how many hours/minutes per day?

▼ 10 mins ... 12 hours

Q34 Rate your perception of exertion during your exercise from 1 to 5 (1 = very light; 5 = very rigorous).

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5

Q35 How long have you been exercising regularly?

- ☐ Years _____
- ☐ Months _____

Q36 What is your main motivation for exercising? (Choose one)

- ☐ To maintain my health
- ☐ To lose weight
- ☐ To gain weight
- ☐ It is a social activity
- ☐ To increase strength
- ☐ I was told to by a physician
- ☐ To cope with stress
- ☐ To feel better
- ☐ For my own enjoyment
- ☐ Other: _____

Q37 Why not?

- ☐ I don't have the time.
- ☐ I don't feel the need to.
- ☐ I have medical restrictions.
- ☐ I haven't found a physical activity that interests me.

- I am afraid of embarrassment/failure.
- Other: _____

Q38 What types of exercise interest you? (Choose all that apply)

- ☐ Walking
- ☐ Stair Climbing
- ☐ Group Exercise
- ☐ Elliptical
- ☐ Weight Training
- ☐ Cycling
- ☐ Jogging/Running
- ☐ Yoga/Pilates
- ☐ Swimming
- ☐ Recreational Sports
- ☐ Other: _____

Q39 Which of the following statements best describes how you feel about physical activity? (Choose one)

- Physical activity is a source of happiness in my life.
- Physical activity is just part of my routine -- I don't think too much about it.
- Physical activity is unnecessary, so I don't bother with it.
- I feel strongly obligated to engage in physical activity.
- Physical activity is a source of stress in my life.
- I have strong negative feelings towards physical activity.

Q40 Below is a list of things people might do while trying to increase or continue regular exercise. We are interested in exercises like running, swimming, brisk walking, bicycle riding, or aerobics classes. Whether you exercise or not, please rate how confident you are that you could really motivate yourself to do things like these consistently, for at least six months. (1= I cannot; 2 = I probably cannot; 3 = Maybe I can; 4 = I probably can; 5 = I can)

	1	2	3	4	5
Get up early, even on weekends, to exercise	○	○	○	○	○

Stick to your exercise program after a long, tiring day at work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exercise even though you are feeling depressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Set aside time for a physical activity program for at least 30 minutes, 3 times per week	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Continue to exercise with others even though they seem too fast or too slow for you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stick to your exercise program when undergoing a stressful life change (e.g. divorce, family death, moving)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attend a party only after exercising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stick to your exercise program when your family is demanding more time from you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stick to your exercise program when you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

have household chores to attend to					
Stick to your exercise program when you have excessive demands at work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stick to your exercise program when social obligations are very time consuming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Read or study less in order to exercise more	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q43 Is this your first pilgrimage/backpacking trip?

- ☐ Yes
- ☐ No

Q44 How many have you completed previously?

▼ 1 ... 10+

Q45 Why did you decide to walk this pilgrimage trail? (Choose all that apply)

- ☐ Religious purposes.
- ☐ My friends are doing it.
- ☐ I wanted a challenge.
- ☐ Trekking is my exercise of choice.
- ☐ Physical health benefits.
- ☐ Mental/Emotional Health Benefits.
- ☐ I wanted to try something new.
- ☐ Other: _____

Q46 Did you adopt an exercise program to train for your trek that is different from your normal exercise routine?

- ☐ Yes
- ☐ No

Q47 How many weeks prior to beginning the pilgrimage did you begin training?

Q48 How many days per week did you train?

Q49 Rate your perception of exertion from 1 to 5 (1 being very light and 5 being very rigorous):

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5

Q50 How confident are you that you will successfully complete this pilgrimage journey as you planned it?

- ☐ Very Confident
- ☐ Somewhat Confident
- ☐ Not Very Confident
- ☐ Not Confident at all

Appendix C

Visual representations for the demographics of participants.

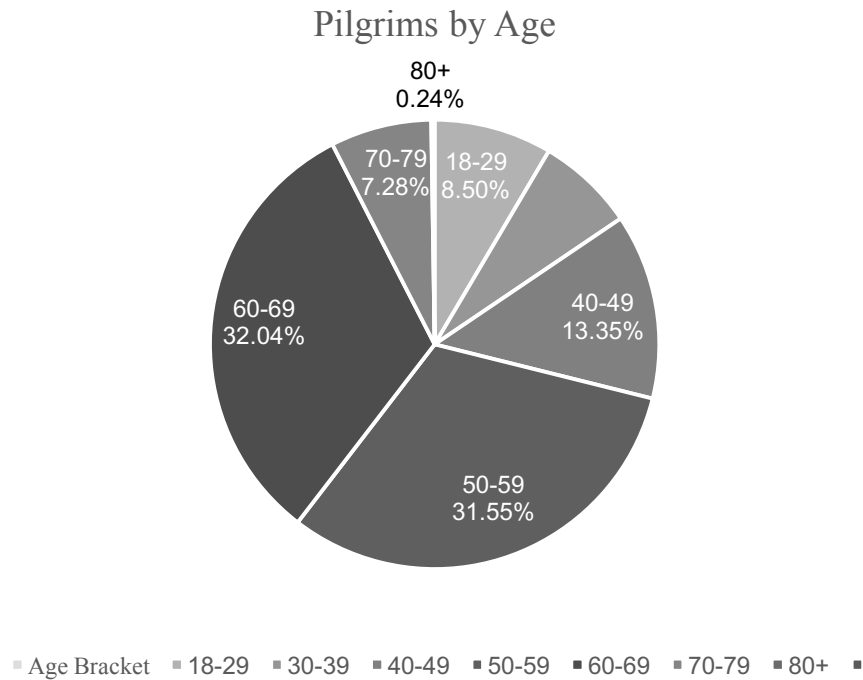


Figure C-1: Pie chart of participant's ages

Sex of Participants

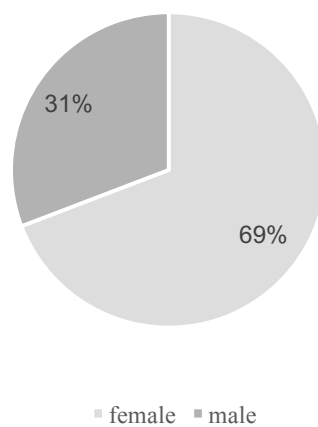


Figure C-2: Pie chart of participant's sex

Appendix D

Scoring guidelines used to calculate each participant's spirituality score.

FACIT-Sp12 Scoring Guidelines (Version 4)

- Instructions:*
1. Record answers in "item response" column. If missing, mark with an X
 2. Perform reversals as indicated, and sum individual items to obtain a score.
 3. Multiply the sum of the item scores by the number of items in the subscale, then divide by the number of items answered. This produces the subscale score.
 4. **The higher the score, the better the QOL/spiritual well-being.**

<u>Subscale</u>	<u>Item Code</u>	<u>Reverse item?</u>	<u>Item response</u>	<u>Item Score</u>
Meaning/Peace	Sp1	0 +	_____	= _____
	Sp2	0 +	_____	= _____
	Sp3	0 +	_____	= _____
	Sp4	4 -	_____	= _____
	Sp5	0 +	_____	= _____
<i>Score range: 0-32</i>	Sp6	0 +	_____	= _____
	Sp7	0 +	_____	= _____
	Sp8	4 -	_____	= _____
<i>Sum individual item scores: _____</i>				
<i>Multiply by 8: _____</i>				
<i>Divide by number of items answered: _____ =Meaning/Peace subscale score</i>				

<u>Subscale</u>	<u>Item Code</u>	<u>Reverse item?</u>	<u>Item response</u>	<u>Item Score</u>
Faith	Sp9	0 +	_____	= _____
	Sp10	0 +	_____	= _____
<i>Score range: 0-16</i>	Sp11	0 +	_____	= _____
	Sp12	0 +	_____	= _____
<i>Sum individual item scores: _____</i>				
<i>Multiply by 4: _____</i>				
<i>Divide by number of items answered: _____ =Faith subscale score</i>				

To Derive a FACIT-Sp12 total score:

Score range: 0-48

$$\frac{\text{Meaning/Peace score}}{\text{(Meaning/Peace score)}} + \frac{\text{Faith score}}{\text{(Faith score)}} = \text{_____} = \text{FACIT-Sp12Total score}$$

*For guidelines on handling missing data and scoring options, please refer to the Administration and Scoring Guidelines in the manual or on-line at www.facit.org.